CLAIMS

1. An electronic paint for an electrophoretic display, said electronic paint comprising:
a lower conductive layer;
a thermal addressing layer disposed on the lower conductive layer;
a layer of electrophoretic ink disposed on the thermal addressing layer; and
an upper conductive layer disposed on the electrophoretic ink,
wherein activation of the electrophoretic ink is based on thermal absorption of thermal radiation in a portion of the thermal addressing layer and a bias voltage applied between the upper conductive layer and the lower conductive layer.

2. The electronic paint of claim 1, wherein the lower conductive layer includes one of a reflective metal and a transparent electrode material.

3. The electronic paint of claim 1, wherein the thermal addressing layer is selected from the group consisting of manganese oxide, nickel oxide, cobalt oxide, iron oxide, copper oxide, titanium oxide, a semiconductor material, a doped semiconductor material, and a negative temperature coefficient material, the thermal absorbing layer having a negative temperature coefficient of resistance.

4. The electronic paint of claim 1, wherein the thermal radiation includes one of infrared radiation, visible light, and ultraviolet light.

5. The electronic paint of cla im 1, further comprising:
a backing layer coupled to the lower conductive layer.

6. The electronic paint of claim 5, wherein the backing layer includes one of a sheet of plastic or a sheet of glass.

7. The electronic paint of claim 5, wherein the backin g layer includes an array of recessed regions to thermally isolate pixel segments in the layer of electrophoretic ink.

8. The electronic paint of claim 1, wherein the upper conductive layer includes a transparent electrode material.

9. A method of activating an electronic paint, the method comprising:

applying a bias voltage;

receiving thermal radiation on a portion of a thermal addressing layer;

absorbing at least a portion of the received thermal radiation in the portion of the thermal addressing layer; and

activating an electrophoretic ink based on the absorbed thermal radiation and the applied bias voltage.

10. The method of claim 9, wherein the bias voltage is applied between an upper conductive layer and a lower conductive layer of the electronic paint.

11. The method of claim 9, wherein the received thermal radiation includes one of infrared radiation, visible light, and ultraviolet light.

12. The method of claim 9, wherein receiving thermal radiation on the portion of the thermal addressing layer includes:

receiving thermal radiation from a scanned beam of laser light from an electronic brush.

13. The method of claim 9, further comprising:

setting an optical state of at least a portion of the electrophoretic ink while the electrophoretic ink is activated.

14. The method of claim 9, further comprising:

removing the bias voltage; and

stabilizing the electrophoretic ink in a predetermined optical state responsive to the removal of the bias voltage.

15. The method of claim 9, further comprising:

cooling the thermal addressing layer; and

stabilizing the electrophoretic ink in a predetermined optical state based on the cooling of the thermal addressing layer.

16. The method of claim 9, further comprising:

initializing the electrophoretic ink to an initialized optical state.

17. An electronic paint activation system, comprising:

an electronic brush including a laser scanner and a position detector; and.

an electronic paint including a lower conductive layer, a thermal addressing layer disposed on the lower conductive layer, a layer of electrophoretic ink disposed on the thermal addressing layer, and an upper conductive layer disposed on the electrophoretic ink,

wherein activation of the electrophoretic ink is based on thermal absorption of thermal radiation from the electronic brush into a portion of the thermal addressing layer and a bias voltage applied between the upper conductive layer and lower conductive layer of the electronic paint.

18. The electronic paint activation system of claim 17, further comprising:

a backing layer coupled to the lower conductive layer.

19. The electronic paint activation system of claim 17, further comprising:

a controller electrically coupled to the electronic brush, wherein the controller controls the thermal radiation from the electronic brush.

20. The electronic paint activation system of claim 19, wherein the controller is wired or wirelessly connected to the electronic brush.